



The PHENIX
Multiplicity Vertex Detector
Final Mechanical Design Review

Jehanne Simon-Gillo
Los Alamos National Laboratory

Brookhaven National Laboratory
July 28, 1997

Agenda

Introduction - 20 min

Jehanne Simon-Gillo

Silicon Detector Performance - 30 min

Hubert van Hecke

Mechanical Overview - 90 min

Jan Boissevain

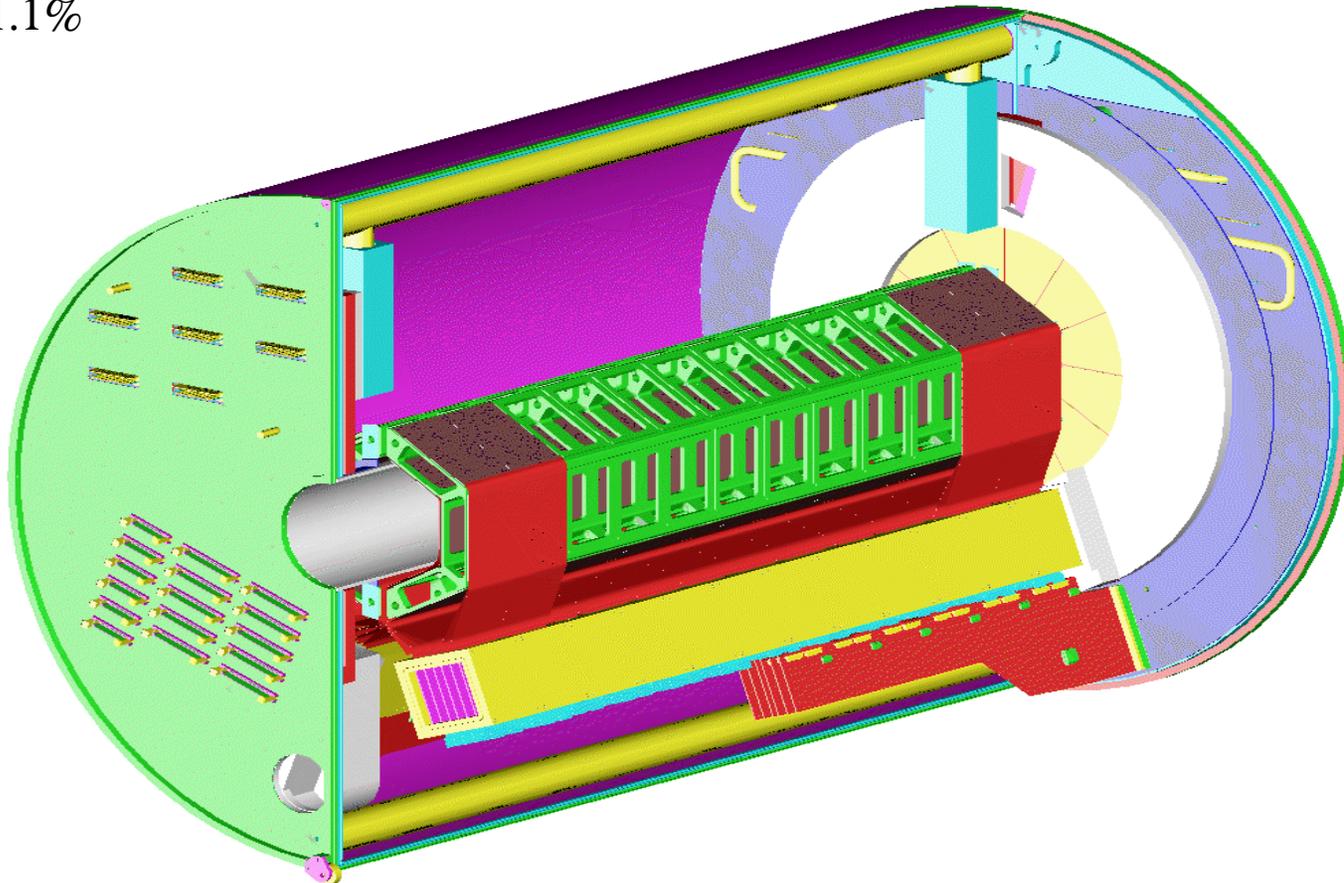
Cooling Systems - 20 min

John Bernardin

Silicon Detector Design - 45 min

Jon Kapustinsky

Clamshell design - mounts to magnet pole faces.
Inner and outer barrels of silicon strip detectors, 200 μ m, 64cm length
Silicon pad endcaps @ +/- 35cm
Rad length \approx 1.1%
Weight < 30lb



Strip electronics at bottom - Multichip Module
256 channels/detector
Channel count = 34,816

MVD Collaboration

Project Leader and DC Member: J. Simon-Gillo (LANL)
Mechanical Coordinating Physicist: J. Simon-Gillo (LANL)
Electronics Coordinating Physicist: J.P. Sullivan (LANL)
Lead Mechanical Engineer: J. Boissevain (LANL)
Lead Silicon & Electronics Engineer: J. Kapustinsky (LANL)
Lead Integrated Chip Design Engineer: C.L. Britton (ORNL)
Lead Interface Module Engineer: N. Ericson (ORNL)
Systems Integration Engineer: J. Boissevain (LANL)
Simulation Computing: H. van Hecke (LANL)
Off-line Computing: J.P. Sullivan (LANL)
On-line Computing: H. van Hecke (LANL)
Database Coordinator: H. van Hecke (LANL)

5 institutions: LANL, ORNL, UCR, UAH, Yonsei
36 participants

People involved in Mechanical Development

P25:

Jan Boissevain, Debbie Clark, Barbara Jacak, John Kapustinsky, Larry Marek, Jehanne Simon-Gillo, John Sullivan, Hubert van Hecke

Richard Conway (MIT)- Assembly issues, RF enclosure

Rachel Cunningham (MIT)-Cooling

Jennifer Lock - Cooling

Sean Shaheen - Silicon

UCR/LANL:

Eric Bozse - Truss structure, Rohacell

David Jaffe - Silicon

Mechanical Support from ESA:

Z. Chen, L. Pariotti - Cooling simulations

C. Potter - Support Structure simulations

J. Bernardin - Cooling tests, general lab support

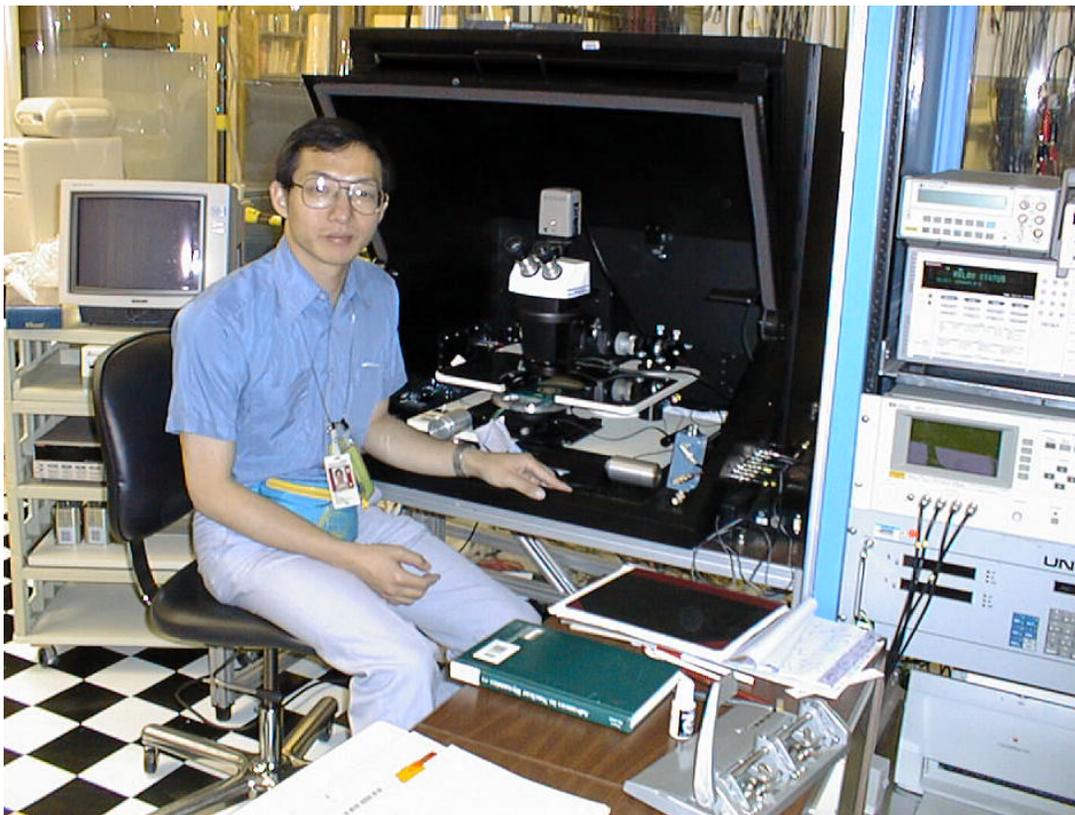
People-power for Assembly and Construction

Jan Boissevain, Richard Conway, Rachel Cunningham, David Jaffe, Larry Marek, Jehanne Simon-Gillo, John Sullivan, Hubert van Hecke

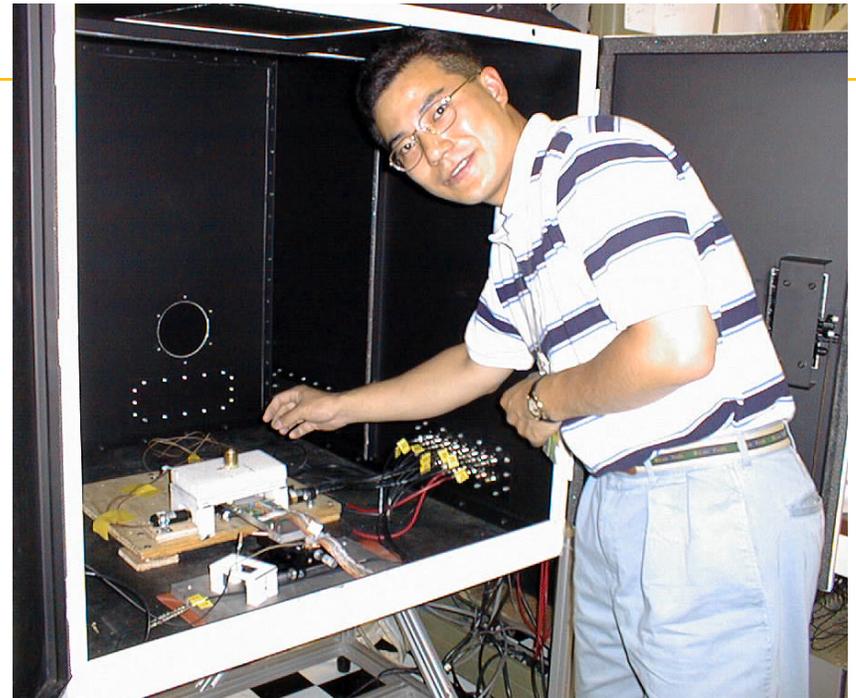
New additions:

Sangkoo Hahn : LANL
Leroy Cope: LANL
Michael Bennett: LANL
Sang Su Ryu: Yonsei
Young Gook Kim: Yonsei
Sang Yeol Kim: Yonsei
Guanghua Xu: UCR
James Chang: UCR
Toshiyuki Shiini: UAH
Arthur Smith: UAH

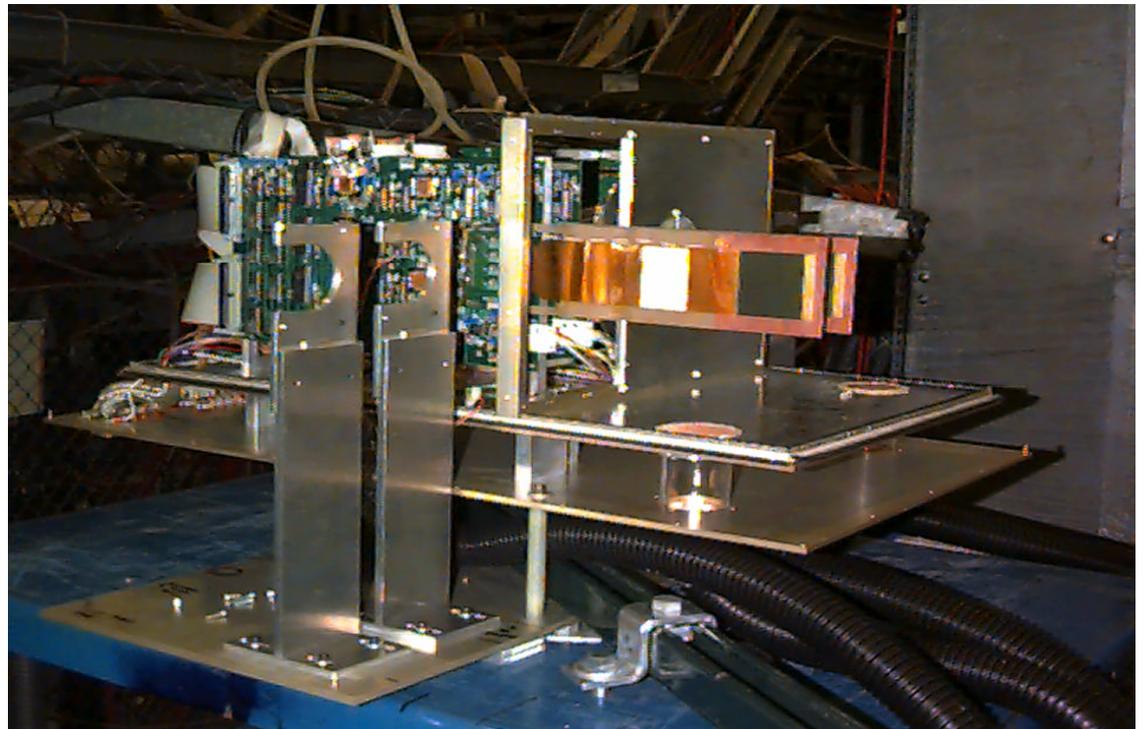
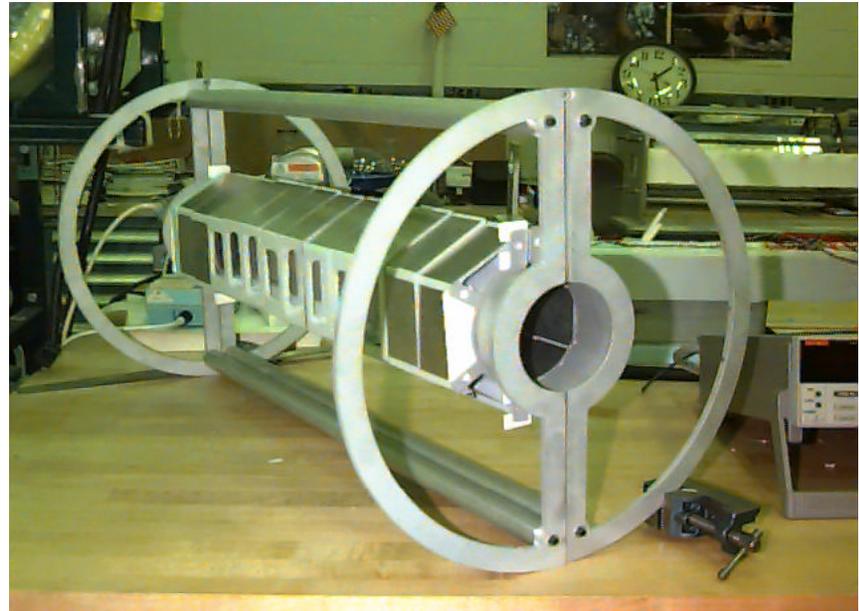
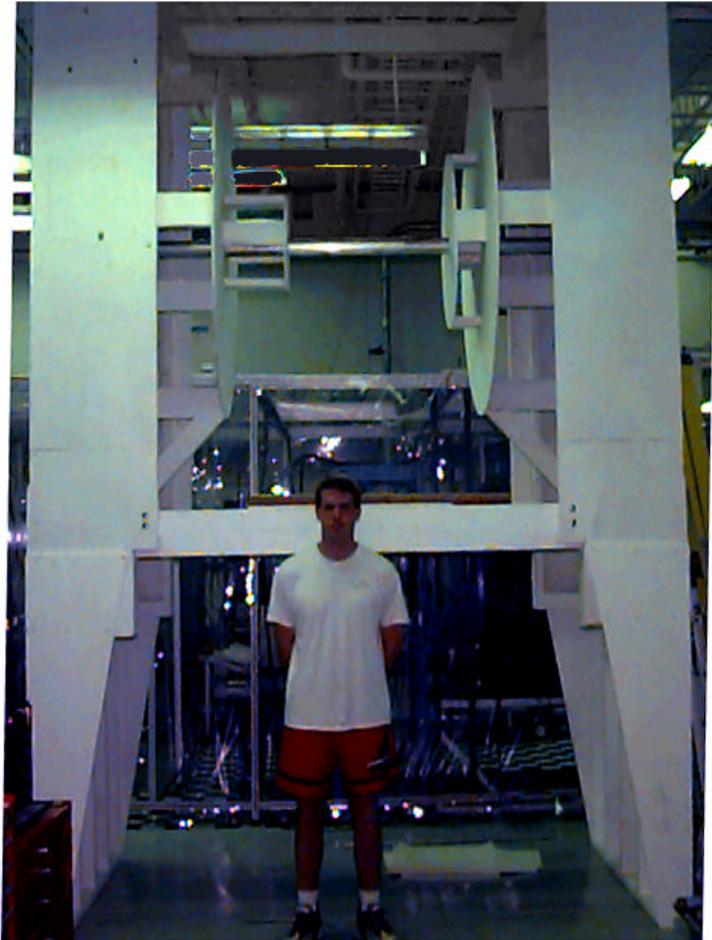
and growing....



Jehanne Simon-Gillo, FMDR 7/29/97



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Cost of MVD Mechanics

FY96 = 1.4M

FY97 = 1.3M

Total amount has slightly decreased
Many changes in file for "bottoms up"

- All tasks, labor and components revisited
- Institutional contributions on labor, more students
- Interface modules, motherboard, powercommunication and daughterboards moved to electronics WBS file
- Currently, expenditures as planned.

Mechanics Schedule

Task Name	1997												1998												1999							
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A
Project Starts																																
Pad Detector Design Complete						◇	◇																									
Preliminary Mechanical Design Review																																
Final Mechanical Design Review						◇	◇																									
Test Vertex Detector Cable Assembly										◇	◇																					
All Detectors Received											◇	◇																				
Electronics Complete																																
All Silicon Detectors Tested																																
Detector Subassemblies Complete																																
Mount Pad Detector Assembly to Endcap																																
Make C cage "Assembly"																																
Test Cooling System Assembly																																
MVD Assembly Complete																																
Prepare experimental mechanical																																
MVD Operational																																

MVD Schedule defined by electronics

Safety Issues

Safety review in April 1997

Rating of connectors and cables (done)

Design of cable plant

Details on mounting (now available)

Lift table is confined space

- special training
- location of lift table controls (done)
- fall protection (done)

Preliminary Mechanical Design Review

August, 1996

Action Items:

Unigraphics vs Autocad

Successful translation of Unigraphics file to Autocad

Liquid vs Air cooling for motherboard

Additional discussions with Pete to explain necessity
Performance and geometry

MVD position when move central magnet

BNL to supply beampipe support and guiding scheme,
CM track/rolling precision....still waiting...
MVD clamshell open position

Slotted Nosecone design

Gone - technology choice of LVDS over fiber optic